SITUATION REPORT NO. 2
INCIDENT NO. 99-009
DATE: March 18, 1999 TIME: 2:00 p.m.

TO: Governor Edward T. Schafer
State Capitol
Bismarck, ND 58505

1. NATURE OF DISASTER: Spring flooding – Above normal soil moisture content throughout North Dakota, compounded by seven years of flooding, has resulted in a strong probability for overland and river flooding.

2. DEATHS AND INJURIES: None reported.

3. DAMAGES: On March 12, 1999, the Grand Forks Office of the National Weather Service (NWS) released a revised Spring Snowmelt Outlook indicating the potential for a crest level of 46 feet on the Red River at Grand Forks this spring. The forecast is based on current conditions and normal precipitation and evaporation during spring. The revised forecast represents a two-foot increase over an earlier forecast issued March 3 for the river, which has a flood stage of 28 feet at Grand Forks. A 46-foot crest in Grand Forks will trigger numerous flood protection measures outlined in the city's flood flight plan. The NWS attributes the increased forecast to above normal precipitation throughout the Red River Basin during the first half of March. The Red Lake River Basin in northwestern Minnesota is also expected to contribute significant runoff to the Red River and affect river levels from Grand Forks north to the Canadian Border. Tributaries in the Upper Red Lake River Basin may approach previous record levels.

   The North Dakota Geological Survey reports that a 46 foot crest on the Red River at Grand Forks is just above the “20-year flood” level, meaning such a flood would be expected to occur five times in any 100-year period, or would have a 5 percent chance of occurring in any given year. The crest could be comparable to the 1996 flood in Grand Forks, according to the Geological Survey.

   The Red River Valley was created as a lake plain, not a river valley, according to geologists for the North Dakota Geological Survey. It formed as the floor of Glacial Lake Agassiz about 10,000 years ago, which is why the area is so flat. That flatness tends to exacerbate flooding since there is only a very shallow gradient to promote runoff of meltwater and precipitation, slowing drainage, geologists reported. When a river overflows its banks, there is no topography to constrain floodwaters, which may spread out over a very wide area, increasing damage. Fine-grain sediment deposited on lake bottoms, and therefore, the material that covers the Red River Valley is relatively impermeable to water, so meltwater or precipitation isn’t able to soak in very quickly. As a result, it ponds up and/or flows into the rivers and streams adding to flood magnitude. With existing high soil moisture content, this effect is magnified.

   The NWS placed the Grand Forks area under a Spring Flood/Winter Weather Advisory on March 17. Up to three inches of snowfall was expected for the area; by morning, the area had already received two inches.

Upstream from Grand Forks, mild temperatures during February reduced the snow cover in the Red River Basin south of Fargo. Precipitation that has occurred thus far during March has been well above normal. Flood statements issued during the week of March 7-13 indicate that the Red River at Fargo has risen to 16.2 feet; flood stage is 17 feet. The river was expected to begin a very slow fall, according to the March 12 flood statement. This spring, the Red River could rise up to 26 feet at Fargo, based on the revised Spring Snowmelt Flood Outlook. The level of the river at Fargo measured 16.77 feet on March 17. Flood protection measures initiated by the city of Fargo for river crests between 20 or 26 feet include closure of riverside roads, the Broadway Bridge, and low-lying recreational areas.

Above normal precipitation that occurred in February and March has prompted the NWS hydrologists to upgrade their forecast for Devils Lake. If normal precipitation and evaporation takes place through July, the lake is expected to rise to 1,446 feet this summer, one-half foot higher than earlier predictions. If below normal precipitation occurs, the lake may stay below 1,446 feet, and if above normal precipitation occurs, the lake will rise above the forecasted level. The lake at Creel Bay currently measures approximately 1,444.1 feet. The lake reached a record high of 1,444.7 feet during 1998.

The Spring Flood Outlook Statement, issued March 12 by the NWS Bismarck Office, indicates that the Souris River Basin could produce minor to moderate flooding because of excess spring runoff. Soil moisture is above normal, and snow depths range from six to 12 inches and contain a moisture content of one to four inches as of March 12. Very little runoff has occurred, and rivers are below flood stage and mainly ice covered throughout the basin.

Minor spring flooding is expected for the Missouri River near Williston, with higher levels expected by mid-June due to mountain snowmelt expected to occur in Montana. The river at Williston could rise to 21 feet, one foot above its flood stage, based on present snow cover and normal precipitation and assumed normal snowmelt patterns. Other Missouri River tributaries are expected to crest below flood stage. At 21 feet, low-lying backup isolated flooding may occur in Trenton Township, which is along the river.

The James River is also expected to crest below flood stage as most of the snow cover in the basin had dissipated by March 12. However, the potential for ice jam flooding throughout the Missouri and James River Basin continues until rivers are ice-free.

Apple Creek was expected to rise to its 15-foot flood stage at Menoken on March 17. The NWS forecasted minor flooding in low-lying areas in the immediate vicinity of the creek.

In Dickey County, the city of Ludden is experiencing high ground water table problems. Sewer systems are not working properly, and one family has moved its mobile home to Oakes. Recent warm weather has melted most of the snow cover and waterways have begun flowing. The Maple River and Bear Creek in Dickey County are full and running out of their banks in low-lying areas. No property or families are in danger at this time.

Morton County officials report flooding in low-lying areas occurred February 26 when the Cannonball River rose six feet above its 10-foot flood stage in Breien. Ice jams and blockages caused the rapid rise. No damage to residences or roads has been reported at this time. The Heart River at Mandan rose one foot above its 17-foot flood stage on March 2. A rapid rise in the river's waters occurred as a result of several ice jams between the N.D. Highway 10 and the mouth of the river. Elsewhere in Morton County, the Heart Butte Dam was flowing two feet above its glory hole and flowing at 700 cubic feet per second. Officials were monitoring the dam; no flooding or damages had been reported.

4. RESOURCES:

LOCAL: No change from the previous report.

STATE: The N.D. Department of Human Services has been providing technical support assistance. N.D.State Water Commission and N.D.State Geological Survey are providing technical information and assistance.

FEDERAL: The Federal Emergency Management Agency (FEMA) has been providing technical support assistance. The United States Army Corps of Engineers has continued to provide information on potential flood preparedness initiatives. The National Weather Service and the U.S. Geological Survey are providing flood threat information.

5. VOLUNTEER ACTION: Members of the N.D. Volunteer Organizations Active in Disaster discussed the spring flood potential during their meeting March 2 at the North Dakota Emergency Management office at Fraine Barracks. The N.D. Department of Human Services participated in the meeting.

6. MAJOR ACTIONS: At the direction of Governor Ed Schafer, the North Dakota National Guard conducted an "ice dusting" initiative on March 11, spreading approximately 7,000 pounds of clean, washed sand on stretches of the Goose River in Hillsboro, near the Golf Course, and on the Park River in the city of Grafton. National Guard helicopter crews applied the sand in an effort to enhance snowmelt, reduce the formation of ice jams and improve the flow of water during the spring snowmelt. The ice dusting is believed to accelerate ice melting through the natural warming process associated with the dark color of the sand. Crews spread strips of sand measuring roughly three feet wide and one-half mile long in each location. Each load weighed approximately 2,000 pounds. The U.S. Army Cold Region Research and Engineering Laboratory has been testing the effectiveness of the procedure. Laboratory staff cut sample areas of ice, measuring approximately 14 feet long and 10 feet wide, at both ends of the dusting sites. Laboratory staff will monitor these sites and, in approximately six weeks, will issue a report as to the effectiveness of ice dusting. In 1997, the National Guard dusted more than 40 miles of river ice along the Sheyenne and Red Rivers.

Staff members from the State Water Commission and the North Dakota Emergency Management conducted a flood preparedness meeting at 1:30 p.m. March 17 in Ellendale. Local officials representing emergency management and water issues from Dickey, LaMoure, Logan, McIntosh and Sargent Counties participated. (Previous similar meetings had been conducted in Valley City, Wahpeton, Fargo, Grand Forks and Pembina in late February.)

State Water Commission and North Dakota Emergency Management representatives participated in an aerial surveillance of southeast North Dakota on March 15. The Dickey County Emergency Manager then provided a ground surveillance tour, and the group met with members of the Dickey County Water Board and the Natural Resource Conservation Service to discuss problems associated with existing high water tables and potential spring flooding.

The city of Grand Forks has activated its Emergency Operations Plan and has its EOC ready for immediate activation as required. The Grand Forks City Council issued an emergency declaration on March 15, and the Grand Forks County Commission issued an emergency declaration the following day. In anticipation of spring flooding, 500,000 sandbags have been relocated to Sandbag Central for the city of Grand Forks. City officials have also been involved in flood protection planning activities on a daily basis as a result of recent flood outlooks issued by the NWS and weather conditions. Those activities include: reviewing potential levee alignments to accommodate different crest scenarios from 46 to 56 feet; finalizing a flood fight plan for the water treatment plant; public meetings; and operational preparation of manpower, facilities and equipment.

7. ASSISTANCE NEEDED: No assistance is requested at this time, with the exception of continuing technical support.

8. OUTSIDE HELP ON SCENE: No outside assistance has been reported at this time.

9. OTHER: Situation Reports published by the N.D. Division of Emergency Management are posted on the Division's Internet home page. The address is: http://www.state.nd.us/dem.

Douglas C. Friez, State Director